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IF THE CORN BORER COMES
(Western Corn-
Growing States)

Anytime, week beginning March 5

MAP

1920

NOT FOR PUBLICATION

ANNOUNCEMENT: Farmers in a number of corn-growing States East of the Mississippi are learning to live with a most undesirable insect neighbor--the European corn borer. Since this pest first crossed the Atlantic 18 years ago, it has naturalized itself as an American farm nuisance. It is apparently here to stay. Federal and State governments are making strenuous efforts to find means of making its residence here as uncomfortable as possible.

In this region, not yet infested by the corn borer, we have the advantage of being able to observe the methods of control used in infested areas, and getting prepared to deal with the pest if and when it invades our fields. It is the opinion of scientists that the borer will eventually infest all considerable corn growing States. Rigid control measures will slow up its advance, but unless new methods develop, it probably will not be eradicated.

Radio Station _____ is cooperating with the corn borer control campaign of State and Nation by giving its listeners each week at this time a review of the present corn borer situation, and explanations of the control methods which have been found to work in infested regions. This is being done simply as a measure of preparedness. The information is furnished by the United States Department of Agriculture.

As the first step in this radio effort to make life miserable for the corn borer if it ever should come to our fields, a specialist of the department today is going to answer some questions which we all naturally want to ask--how this pest thrived last year, whether it settled in any new territory, and what control measures have been found most efficient.

I'm going to put the specialist, who for the purposes of this interview will be known as Mr. Jack Stone, through this first "ask Uncle Sam another" session. And here's the first question I want to put to him:

Mr. Stone, the first thing I want to know is, did the European corn borer increase in numbers in 1927?

STONE: The answer is yes and no. That is, in Ohio and New York, representing two-thirds of the control area, the numbers of corn borers were reduced. But in Michigan and Pennsylvania, where conditions were apparently favorable to increase, the borer population more than doubled. Because of the increases in these states, there were 1 and $\frac{1}{2}$ times as many borers in the whole area at the end of 1927 as there had been at the end of 1926.

ANNOUNCER: How much of a reduction in the number of borers was there in Ohio and New York?

STONE: Before giving the answer, I ought to explain that we report the corn borer census returns in terms of numbers of borers per 100 corn stalks. On that basis, the reduction in Ohio was from 6 borers per 100 stalks in 1926 to 5 borers per 100 stalks in 1927. In New York the 1926 count showed 12 borers per 100 stalks and the 1927 count showed 10. Not many borers, comparatively speaking, have settled in Indiana. Even in 1927, infested Indiana regions had less than one borer to each 100 stalks of corn.

ANNOUNCER: Now tell me, Mr. Stone, if the corn borer invaded any new territory last year.

STONE: Yes, the borer was discovered for the first time in 1927 in 55 counties where it hadn't been found in 1926. The principal spread was to the South in Ohio as far as Pickaway county; to the West in Indiana to within 30 miles of Lake Michigan; and to the North in Michigan to the Straits of Mackinac. By states, the number of counties newly found infested last year was: Ohio, 18; Pennsylvania, 14; Michigan, 12; Indiana, 10; and New York, 1.

ANNOUNCER: That satisfies my curiosity about the increase in numbers of corn borers and the extent of their spread into new territory last year. Now I'd like to know just exactly what means of controlling the corn borer have been found from the past years' experience in fighting it.

STONE: Briefly stated, the opinion of the U. S. Department of Agriculture is that serious commercial injury by the corn borer-----

ANNOUNCER: Just a second; put me straight, please, on what you mean by serious commercial injury.

STONE: I can't put you entirely straight on that in a second. Commercial damage depends upon the number of borers per stalk, the variety of corn, and the size and vigor of the plants. The specialists say that a field in which the average stalk is giving board and lodging to five borers probably won't be commercially damaged, but one with 30 borers to the stalk will produce no crop. In field corn "commercial" damage begins to be felt when the borer population gets to 10 per stalk. Slightly fewer borers per stalk will cause "commercial" damage to sweet corn.

Now to get back to control methods: As I said, the department holds that serious commercial damage by the corn borer can be pretty well prevented by sticking to the low-cutting, clean plowing, poling, raking and burning methods of control. Even though the wet spring last year enormously increased the difficulties of cleaning up by such methods, the 1927 campaign showed that they will retard the increase in borers, or actually reduce their numbers, as resulted, for example, in Ohio and New York.

ANNOUNCER: Well, let's get down to cases on the spring work that needs

to be done in order to keep the borer under our thumb. First, tell me where the borers stay on the farms during the winter months.

STONE: During the winter months the borer hibernates in old pieces of corn stalk, stubble, or cob, either in the fields or in the barnyard. Its favorite winter retreats are stalks or high stubble left in the field. As the stalk dries up the borer crawls down toward the roots where there is more moisture, and lives comfortably enough during the winter. But the borer will hole up for the cold season in any old piece of last year's corn plant around the farm. In June the borer turns into a moth which flies about for two or three weeks, and lays about 400 eggs. These eggs hatch into larvae--that is, the borers--which do the damage to the corn crop. In the opinion of scientists about 15 of each 100 larvae get into the corn plant, so that the average borer produces 60 effective children to harry the farmer next season.

ANNOUNCER: So then it is necessary to get rid of every piece of last year's corn plant in a way that will kill the borer?

STONE: Exactly.

ANNOUNCER: And how can that be done?

STONE: By low cutting, plowing completely under all corn refuse, raking and burning, and ensiling and shredding.

ANNOUNCER: Well, now take a specific case: What clean-up methods are used in a field of standing stalks?

STONE: The farmers break off stalks close to the ground, rake them, and burn them. The stalks can be cut off or broken off by any one of several methods. Many farmers use an old railroad rail; others use a heavy pole or a timber with sharp edges. Frosty mornings are the favored times for stalk breaking, for then the brittle stalks snap off like pipestems. If the ground is frozen so much the better. The broken stalks are raked into piles or windrows and burned as soon as they are dry.

If small grains are to be sown in the standing stalk fields, all the stalks must be cut or broken at the ground level. Unless a clean job is done the raking and burning process is greatly handicapped and a back-breaking job of hand picking may be necessary to complete the clean-up.

Some farmers have been successful in plowing under all the corn refuse left in the field. A 14-inch bottom plow, equipped with attachments for covering trash, gives good results when properly adjusted. The new and specially-designed 16-inch and 18-inch bottom plows recently placed on the market are well adapted for clean plowing and have given good results when used in standing corn stalks and stubble.

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ANNOUNCEMENT: In our interview next week with the men who know the facts about the corn borer, we'll learn more about the pest's habits, its present doings, and methods that are meeting with some success in keeping the whip hand over it. Meanwhile, if you have any questions to ask about the corn borer, send them along. Station _____ will get authoritative answers from the Department of Agriculture.

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IF THE CORN BORER COMES
(Western Corn-Growing
States)

In 3 If

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Anytime, week of

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U. S. Department of Agriculture

(ANNOUNCER: One announcer only is required for this release)

ANNOUNCEMENT: Now comes the weekly 10-minute period which Station _____ and its farmer listeners devote to a discussion of the farming problems which will arise IF THE CORN BORER COMES to this region. Today, a specialist of the U. S. Department of Agriculture, a leader in the federal and state drive against the corn borer, supplies facts about what the borer has done where it got well established, and just how farmers in the infested areas carry on one of the most important spring control measures --clean plowing.

In Kent County, Ontario, Canada, John Johnson farms 150 acres of good land. Until two years ago his main source of income was Flint corn which he sold for seed. The 30 acres he usually planted to corn yielded from 500 to 1,000 bushels according to the season. Then came the corn borer invasion. In 1926, Johnson reduced the corn acreage to 19 acres, because of borer damage. He got only 200 bushels from the 19 acres. Last year he cut his corn planting to 10 acres. This year he doesn't intend to grow corn. He replaces the corn with beans, cabbage, and more wheat.

Johnson estimates conservatively that the corn borer has decreased his income \$500 per year.

His experience is a pretty good answer to the question sometimes raised--- does the corn borer menace the corn crop of the United States? It's a startling answer, true enough. But there is this encouraging footnote to Johnson's story. He believes that a smaller corn acreage for a few years and a permanent clean-up can hold the pest in check. That he's correct is indicated by the fact that the Ontario clean-up in the spring of 1927 reduced corn-borer infestation 50 per cent. The Canadians, along with farmers of the United States, are learning to live with the corn borer and keep it under control.

It seems worth while to try to keep down borer damage when we recall that the fight is made to protect a crop valued annually at about 2 billion dollars; a crop, moreover, on which our great livestock industry depends.

Joe Srigley, another Ontario farmer living in Kent county, has a true story to tell that indicates how the corn borer affects stock raising.

Srigley used to specialize in hogs, selling as much as \$1,500 worth of hogs each year. The corn borer has forced him to shift to poultry. Last year he planted four acres of corn. Before the corn borer came to Ontario and started eating the corn he used to feed to hogs, he planted 30 acres. Now he keeps a flock of 750 chickens and a herd of 10 dairy cows to take the place of hogs and corn.

Listeners who have not visited infested areas probably are curious about just how the corn borer damages the corn plant so as to cause such heavy crop losses.

The borer, which is the larvae stage of the insect, hatches from eggs which the moth lays on the leaf of the corn plant, bores into the corn stalk, and begins to eat his way up and down. This tunneling of the stalk does the most damage, though serious losses result because of the reduction in number and quality of the ears. In badly infested Canadian fields where there are 40 or 50 borers in one plant the stalks become mere hollow shells and break over before the ears have a chance to mature. Borers are found in every part of the plant -- the stalk, the cob, and the ear,

Just now in the infested regions farmers are planning one of the most important spring control measures -- clean plowing. In the remainder of this talk five questions which are continually cropping up about plowing as a means of borer control will be answered. The first is:

Does plowing kill the borer?

And the answer is that the mere plowing under of infested cornstalks does not of itself kill many borers. Most of the pests crawl up to the surface sooner or later. But notice this: if a clean job of plowing is done, borers coming to the surface can't find any shelter. Exposed to the weather and to the attacks of their natural enemies--birds, ants, ground beetles, and various insect parasites and predators--they soon perish.

On the other hand, if the plowing job isn't cleanly done, the borers reaching the surface lodge in fragments of corn husks, cornstalks, corn leaves, stubble, and weeds that may be there and remain snugly housed until they emerge as moths to lay the eggs from which the 1928 army of borers will come.

Now you naturally want to know just what is a clean job of plowing for borer control.

It is plowing which leaves no plant material of any kind on the surface. Not only that, all fragments which might shelter borers must be buried so thoroughly that none will be dragged to the surface later in disk ing and cultivating. To insure this result, plowing to a depth of 6 inches is recommended; also surface cultivation after plowing to close all large cracks and crevices. But if it isn't possible to plow to a depth of 6 inches, a clean job still can be done by skilful plowmen. The depth isn't important, so long as all fragments are covered to stay covered.

Poor or ordinary plowing does not control the corn borer, and in a good many ways is worse than no attempt to cover litter because it is difficult to clean up a poorly plowed field by other methods.

Now, I can hear you asking, "How can a clean job of plowing be done?

As I've just said, the skill of the plowman is just as important as the size or type of plow used. Careful, painstaking work to see that all surface refuse is turned under is the first essential. As to the kind of plow: a 14-inch bottom plow equipped with attachments for covering trash gives good results when properly adjusted.

Many farmers have found that fastening three No. 9 galvanized or wrought iron wires to the plow helps cover the trash securely. These wires are about 10 feet long and trail behind the plow. The loose ends are caught by the furrow slice as it turns over. The weight of the soil on the buried ends holds the wire taut, and the wires hold the trash and stalks to the bottom of the furrow slice.

New, especially-designed 16-inch and 18-inch plows well adapted for clean plowing have recently been placed on the market. They do good work in fields of standing corn stalks. Field tests with these plows showed that with the aid of a rolling coulter of proper size and of the wires just described they completely turn under all standing corn stalks and all trash.

And now, finally, what is the best time to plow for borer control?

Experiments have shown that in the Middle West the time of plowing is not important as far as destruction of the borer is concerned. If the stalks are plowed under during the late summer or early fall, or in the spring, most of the borers leave the stalks and crawl to the soil surface looking for shelter there soon after plowing. If the stalks are plowed under in the late fall most of the borers remain inactive in the stalks all through the winter and come to the surface in the spring after the soil warms up in April or May.

The important thing is not the time of plowing, but the certainty that there is no debris left on the surface to shelter the corn borer.

Just a brief summary of the important things to remember about spring plowing to control the corn borer:

First, if plowing is to be effective all trash must be turned completely under so that material may not by later cultivation be dragged to the surface before time for the moths to emerge.

Second, clean plowing controls borers by depriving them of shelter when they crawl to the surface.

Third, average plowing methods must be improved sufficiently to insure that all cornstalks and trash are turned completely under.

Fourth, neither depth of plowing nor time of plowing is important for borer control if a clean job is done and material is not afterward dragged to the soil surface.

Fifth, and last, for a more extended discussion of corn borer control methods, secure Farmers' Bulletin No. 1-5-4-8, issued by the United States department of agriculture.

ANNOUNCEMENT: And that concludes the second of nine weekly broadcasts for which Station _____ has arranged with the U. S. Department of Agriculture in order to aid in the campaign against that menacing crop pest, the European corn borer. Listeners wishing the bulletin just mentioned, may send request to this station. For the benefit of those who may have missed the number of the bulletin, it is Farmers' Bulletin 1-5-4-8.

